REMARKS

By this amendment: (1) the specification is amended to add antecedents for language in the claims without adding new matter; (2) claims 94, 95, 97-101 and 123 are amended to better define the invention; and (3) new claims 131-136 are added to better define the invention.

Claims 19-27 and 31-136 are now in this application. In view of the above amendments and the remarks hereinafter, it is respectfully requested that this application be reconsidered.

The rejection of claims 95-97 under 35 U.S.C. 112, first paragraph, as failing to satisfy the enabling requirement on the ground that the specification fails to identify the first and second substances is respectfully traversed. A person of ordinary skill in the art could practice the invention from the specification which identifies the substances used in practicing the invention by chemical name. However, the claims and specification have been amended to use the same terms to aid a person of ordinary skill in the art to correlate the claims and the specification. New claims 131-136 are enabled for the same reasons as claims 95-97.

The rejection of claims 95-97 under 35 U.S.C. 112, first paragraph, as failing to satisfy the requirement that the inventor describe the best mode of practicing the invention contemplated by the inventor is respectfully traversed. The U.S. Patent Office has the burden of evidence of concealment of the best mode to create a *prima facie* case of failure to disclose the best mode and this burden has not been satisfied. The inventors have disclosed the best mode contemplated by them of practicing the invention in the application.

The rejection of claims 94-98 and 101 under 35 U.S.C. 102(a and/or e) as anticipated by Zare, et al., patent publications ('309), ('308), ('310) and ('257) is respectfully traversed. Claims

94-98 are all limited to radiation that penetrates columns having a diameter greater than 20 mm. Each of the above references cited by the Examiner relates to capillary columns and uses radiation with very low penetrating ability. Claim 101 is also limited to penetrating a monolith having a diameter greater than 20 mm which is not disclosed in any of the cited references. New claims 131 and 132 depend from claim 102 and are patentable for the same reason. New claims 133-136 recite that the mixture includes a solvent with an index of refraction that is substantially the same as that of the polymer which is not disclosed nor suggested in the cited references and is patentable over them.

The rejection of claims 94-98 and 101 under 35 U.S.C. 1039a) as obvious over Zare, et al., patent publications ('309), ('308), ('310) and ('257) is respectfully traversed. The novel recitations discussed above would not have been obvious to a person of ordinary skill in the art from any of these references. The references are explicitly directed to capillary columns which do not require any substantial amount of penetration of the radiation and the mechanism of photo-initiation as described in those references is not capable of the required penetration to achieve uniformity in the monolithic plug. There is no suggestion in any of those references that would enable a person of ordinary skill in the art to modify the teachings providing for uniform penetration of a larger column. Indeed, there is no mention of any intention on the part of Zare, et al., to prepare columns utilizing radiation for the purpose of avoiding high gradient temperatures during polymerization by controlling the polymerization. New claims 131 and 132 depend from claim 102 and are patentable for the same reason. New claims 133-136 recite that the mixture includes a solvent with an index of refraction that is substantially the same as that of the polymer which is not disclosed nor suggested in the cited references and is patentable over them.

The rejection of claims 95-97 under 35 U.S.C. 103(a) as being unpatentable over each of the Zare, et al., patent publications ('308), ('309), ('310) and ('257) in view of Ashley is respectfully traversed. Neither the Zare, et al., publications nor Ashley disclose any mechanism that permits uniform polymerization without excessive exotherms of a monolith. Moreover, it would be unobvious for a person of ordinary skill in the art to utilize the mechanism described in Ashley to perform the overall functions as described in the Zare, et al., publications. There is nothing in Zare, et al., that would indicate any use for the mechanism described in Ashley. Moreover, there is no teaching in the Zare, et al., publications nor in Ashley that would enable a person to utilize the mechanism disclosed in Ashley in the devices of the Zare, et al., publications. Ashley uses a second flourescent substance that is excited by a first flourescent substance to create luminescent objects, not to perform polymerization. There is no teaching of the unobvious problem that is solved by the claimed invention in any of the references. Accordingly, the combination of Zare, et al., teachings with Ashley teachings is unobvious. Moreover, it is questionable whether Ashley is in an analogous art that is proper to combine with the art described by Zare, et al. New claims 131 and 132 depend from claim 102 and are patentable for the same reason. New claims 133-136 recite that the mixture includes a solvent with an index of refraction that is substantially the same as that of the polymer which is not disclosed nor suggested in the cited references and is patentable over them.

The rejection of claims 102-104 under 35 U.S.C. 103(a) as being unpatentable over each of Zare, et al., patent publications ('308), ('309), ('310) and ('257) as applied to claims 94-98 and 101, and in view of Rose is respectfully traversed. Rose does not cure the defect in the Zare, et al., references when relating to penetration even though x-rays will penetrate. Rose does not cure the defect because Rose is not concerned with penetration even though, in listing all of the imaginable

types of radiation as alternatives to the light used in Rose's preferred embodiment, Rose also mentions x-rays. Without the need to penetrate the mixture, a person of ordinary skill in the art would not use the dangerous and expensive x-ray as a source of energy for polymerization. Both Rose and Zare, et al., apply the energy along the longitudinal side of capillaries and have no suggestion of any penetration problem because they do not have a penetration problem. Zare, et al., teaches away from axial illumination since he wants to grow the plug axially.

Moreover, claims 102-104 relate to the forming of a porous support obtained by incorporating a porogen in a polymerization mixture and Rose teaches directly against such porous support. He teaches polymerization of a gel for electrophoresis and the patent to Rose is aimed primarily at eliminating voids to enable a lower electromagnetic potential to be used. A person of ordinary skill in the art would not combine a method of forming a gel for electrophoresis with no openings with teachings of a method for forming a porous support with uniformity in its pores for use in chromatography. New claims 131 and 132 depend from claim 102 and are patentable over the combination of Zare, et al., and Rose for the same reason. New claims 133-136 recite that the mixture includes a solvent with an index of refraction that is substantially the same as that of the polymer which is not disclosed nor suggested in the cited references and is patentable over them.

The rejection of claims 103 and 104 under 35 U.S.C. 102(b) as anticipated by Rose or in the alternative under 35 U.S.C. 103(a) as obvious over Rose is respectfully traversed. Rose teaches preparing an electrophoresis gel with no openings to obtain electrophoresis with a lower gradient thus he does not disclose a porous solid support. Moreover, Rose teaches slowly growing the gel by moving his source of energy along the longitudinal axis of a capillary to avoid openings. Accordingly, Rose does not teach applying x-rays axially. Although Rose teaches x-rays, he is not

attempting to increase depth of penetration, which would be necessary if the x-rays were to be applied axially. Moreover, Rose would not be able to slowly grow the polymer along the axis to prevent voids by shrinkage if he applied the energy axially to the electrophoresis capillary. Moreover, it would not have been obvious under 35 U.S.C. 103(a) to modify the teachings in Rose to arrive at a porous support or to achieve uniformity in the rate of polymerization to avoid temperature gradients. Rose is not trying to accomplish any of these objectives but is trying to avoid any openings as being detrimental to electrophoresis and optimizing Rose would move in the opposite direction from the claimed invention in this application.

The rejection of claims 117, 122 and 126 under 35 U.S.C. 103(a) as being unpatentable over each of the patent publications to Zare, et al., ('309), ('308), ('310) and ('257) as applied to claims 94-98 and 101 and further in view of Good is respectfully traversed. Claims 117 and 122 depend from claim 94 and are patentable over the teachings in the publications to Zare, et al., for the reasons discussed in connection with the rejection under 35 U.S.C. 102 and 103 over the publications of Zare, et al., above. As pointed out in these arguments, the publications of Zare, et al., relate to capillaries and do not utilize x-rays to initiate polymerization nor are they concerned with such penetrating radiation since they relate to polymerizing within a capillary. The patent to Good does not cure the problem with the publications of Zare, et al., relating to penetration.

Good has no disclosure relative to penetration since the disclosure of Good is concerned particularly with coating to the wall of capillaries. Good does not rely on radiant energy for any purpose at all. Claim 126 depends from claim 101 and is patentable over the publications of Zare, et al., for the same reasons as claim 101. Good does not change the situation because Good, as described above, has no relevance to penetrating the polymerization mixture with radiant energy.

New claims 131 and 132 depend from claim 102 and are patentable for the same reason. New claims 133-136 recite that the mixture includes a solvent with an index of refraction that is substantially the same as that of the polymer which is not disclosed nor suggested in the cited references and is patentable over them.

The rejection of claims 123 - 125 under 35 U.S.C. 103(a) as being unpatentable over the patent publications of Zare, et al., ('309), ('308), ('310) and ('257) as applied to claims 94 - 98 and 101 and further in view of Amos is respectfully traversed. Claims 123 - 125 depend from claim 94 and are patentable over the publications of Zare, et al., for the same reasons. The patent to Amos is not directed to any of these reasons which relate to the penetrability of the radiant energy that causes polymerization. Zare, et al., does not use such radiant energy at all in his polymerization process and is not concerned with plugs used in the separation sciences at all. Instead Zare, et al., is concerned with making of a powder generally or the formation of solid articles that can be readily dyed and used. Accordingly, claims 123 - 125 are not obvious over the combination of the publications of Zare, et al., with Amos. New claims 131 and 132 depend from claim 102 and are patentable for the same reason. New claims 133-136 recite that the mixture includes a solvent with an index of refraction that is substantially the same as that of the polymer which is not disclosed nor suggested in the cited references and is patentable over them.

On April 26, 2005, applicant submitted the references from form PTO-1449 as requested by the Examiner.

Since the claims in this application are proper under 35 U.S.C. 112 and patentable under U.S.C. 102 and 103, it is respectfully requested that this application be passed to issue.

Respectfully submitted,

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